

# Advanced Building Guidelines

Jim Edelson, Project Manager

Federal Sustainability Working Group Washington, DC April 23, 2003

A not-for-profit public benefits corporation helping to make buildings better for people and the environment



# Summary





Advanced Building Guidelines

LEED and the Guidelines

Federal context

• Q & A



# New Buildings Institute

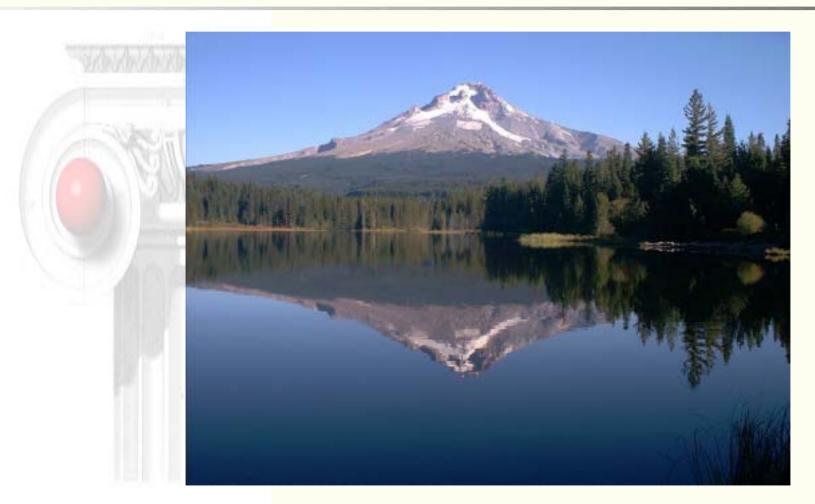


- Formed in December 1997 as 501(c)3
- Offices in NW & CA
- Working with partners in:
  - California
  - Northwest
  - Northeast
  - Midwest
- Annual revenues of over \$2 million



# Setting







# 2002 Sponsors



- Northwest Energy Efficiency Alliance
- Efficiency Vermont
- Energy Foundation
- Iowa Energy Center
- National Grid, USA
- New York State Energy Research and Development Authority
- Northeast Energy Efficiency Partnerships, Inc.
- California Energy Commission
- Sacramento Municipal Utility District
- Southern California Edison Company
- US Environmental Protection Agency



# FY 2003 Project Portfolio



#### Building Science Research

- HVAC, Daylighting and Outdoor Lighting (PIER)
- Lighting Controls (PIER)
- As-Built Performance vs Energy Design Intent (EPA)

#### Guidelines

- Advanced Lighting Guidelines
- Advanced Building Guidelines

#### Codes

- Acceptance Testing (California's Title 24)
- Targeted National, Regional and State Support

#### Other

- WI Brochures on High Performance Buildings
- Leading Edge Architectural Design Competition



# Advanced Building Guidelines (Guidelines)



- Goal: define best practice in the design, construction, start-up and operation of new and renovated nonresidential buildings.
- Focus: Energy technologies & practices in Commercial Buildings.
- Audience: utilities, public benefits orgs, market transformation orgs, facilities specifications, and design & construction teams.



#### Elements:



- Planning Guide (the "Why")
  - Sector-based marketing information
- Criteria Guide (the "What")
  - Prescriptive criteria
  - Performance criteria
    - Reference 90.1 ECB w/ Appendix G
  - Process and Documentation
    - Follows Guideline 1 Process (Commissioning)
- Design Guide (the "How")
- Delivery Partners (the "Who")
  - Sponsors and others implement



## Criteria Guide



- Nationally recognized criteria for setting efficiency targets
- Fit within other programs
  - Commercial new construction
  - LEED/Green Buildings
  - Tax Credits
  - Energy Star
- Two levels
  - First level (10% to 30% above ASHRAE)
  - Second level (50% above ASHRAE)
- Targeted to improve "actual" performance



## Criteria Review Process



#### ANSI Procedure

- Committee Balance
- Public Review Process
- Committee Participation
  - Face-to-face
  - Conference Calls
- Schedule
  - September 02 Draft
    - Chicago Review (October)
  - February 03 Draft
    - Atlanta Review (March)
  - NBI Board Review
    - Location TBD (April/May)
  - Publish
    - May 2003





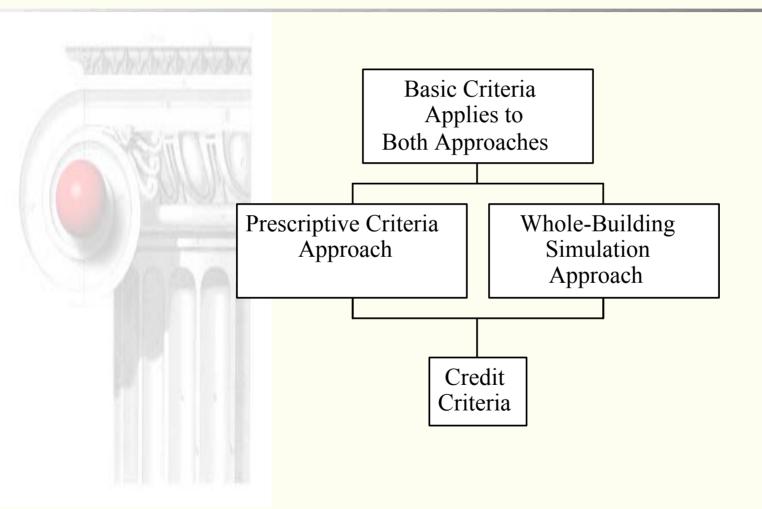
## Review Committee



Northeast Energy Efficiency Partnership	Watt Stopper		
Ring & DuChateau, Inc.	Owens Corning		
Shepley, Bulfinch, Richardson & Abbott	Alliance to Save Energy		
Primary Glass Manufacturer's Council	American Council for an Energy Efficient Economy		
National Grid USA	U.S. Department of Energy-FEMP		
IESNA	Edison Electric Institute		
American Gas Association	Trane Co.		
PowerLight	Consulting Engineer		
Special Projects for Management	CTL Group		
NEMA	Marina Mechanical		
City of Seattle	Working Buildings, LLC		
National Grid USA	B. Alan Whitson Co.		

## Criteria



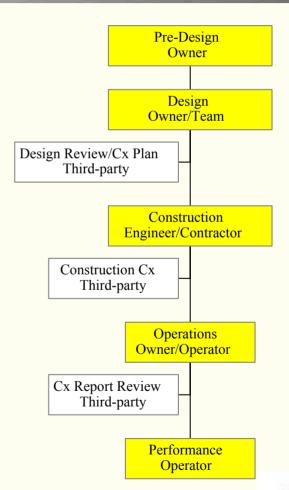




### Documentation



- Pre-design Certification
  - Statement of goals and principles
- Design Certification
  - Final plans/specs
- Construction Certification
  - Submittal/Cx Report
- Operations Certification
  - Trend-log/Warranty
- Performance Certification
  - Measurement and Verification

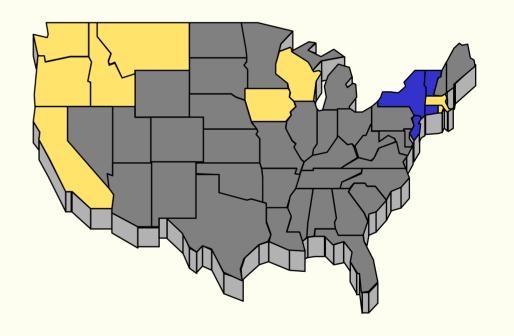




# Sponsor/Carrier Status



- Current Sponsors
  - NEEA (NW)
  - WI Dept of Admin (WI)
  - Iowa Energy Center
  - Energy Foundation
  - National Grid (MA)
  - CA Energy Commission
- CY 03 Prospects
  - Northeast Utilities (CT)
  - NSTAR (Boston)
  - Savings by Design (CA)
  - Energy Smart (NJ)
  - NYSERDA/LIPA (NY)
  - Efficiency Vermont
  - US EPA





### Connections



- LEED
  - Energy and Atmosphere Points
- New Construction Programs
  - Next generation program design
- Public Buildings
  - Advanced specification
- Tax Credit (In Congress)
  - How to exceed ASHRAE by 50%
- Energy Codes
  - Next generation code levels





Utility and Public Benefit Programs





# Public Buildings



- Wisconsin DOA application to state buildings
- Washington state application to school and educational facilities



## Links to LEED

Comparison of ABG Criteria Guide with LEED

	Sustainable Sites	
SSc72 Credit 7.3		
SSC80 Credit 8	Light Pollution Reduction	
	Water Efficiency	
	Energy & Atmosphere	-
EAp10 Prereq1	Fundamental Building Systems Commissioning	
EAp20 Prereq 2	Minimum Energy Performance	
EAc1 Credit 1.		
EAc2 Credit 2.		
EAC30 Credit 3	Best Practice Commissioning	
EAc50 Credit 5	Measurement and Verification	
EAc60 Credit 6	Green Power	
	Materials & Resources	
	materials a resources	
	Environmental Quality	
EQp10 Proreq1	Minimum IAQ Performance	
EQc10 Credit 1	Carbon Dioxide (CO <sub>3</sub> ) Monitoring	
EQc20 Credit 2	Increase Ventilation Effectiveness	
	Complementary IAO Management Disc. Drive	
EQc31 Credit 3.	Construction IAQ Management Plan. Prior	
EQc32 Credt 3.	Construction IAQ Management Plan, During	
EQc32 Credit 3. EQc50 Credit 5	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control	
EQc32 Credit 3: EQc50 Credit 5: EQc61 Credit 6:	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window	
EQc32 Credit 3: EQc50 Credit 5: EQc61 Credit 6: EQc62 Credit 6:	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls	
EQc32 Credx 3: EQc50 Credx 5 EQc61 Credx 6: EQc62 Credx 6: EQc71 Credx 7:	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort. Comply with ASHRAE 55-1992	
EQc32 Credt 3. EQc50 Credt 5 EQc61 Credt 6. EQc62 Credt 6. EQc71 Credt 7. EQc72 Credt 7.	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort, Comply with ASHRAE 55-1992 Thermal Comfort, Permanent Monitoring System	
EQc32 Credt 3. EQc50 Credt 5. EQc61 Credt 6. EQc62 Credt 6. EQc71 Credt 7. EQc72 Credt 7. EQc81 Credt 8.	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort. Comply with ASHRAE 55-1992 Thermal Comfort. Permanent Monitoring System Daylight and Views Diffuse Surlight to 90%	
EQc32 Credt 3. EQc50 Credt 5 EQc61 Credt 6. EQc62 Credt 6. EQc71 Credt 7. EQc72 Credt 7.	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort. Comply with ASHRAE 55-1992 Thermal Comfort. Permanent Monitoring System Daylight and Views Diffuse Surlight to 90%	
EQc32 Credt 3: EQc50 Credt 5: EQc61 Credt 6: EQc62 Credt 6: EQc71 Credt 7: EQc72 Credt 7: EQc81 Credt 8:	Construction IAQ Management Plan, During Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort. Comply with ASHRAE 55-1992 Thermal Comfort. Permanent Monitoring System Daylight and Views Diffuse Surlight to 90%	
EQc32 Credt 3: EQc50 Credt 5: EQc61 Credt 6: EQc62 Credt 6: EQc71 Credt 7: EQc72 Credt 7: EQc81 Credt 8:	Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort. Comply with ASHRAE 55-1992 Thermal Comfort. Permanent Monitoring System Daylight and Views Diffuse Surlight to 90% Daylight and Views Direct Line of Site to 90% Design Excellence	
EQc32 Credt 3: EQc50 Credt 5: EQc61 Credt 6: EQc62 Credt 6: EQc71 Credt 7: EQc72 Credt 7: EQc81 Credt 8:	Indoor Chemical and Pollutant Source Control Controllability of Systems. Operable Window Controllability of Systems. Individual Controls Thermal Comfort. Comply with ASHRAE 55-1992 Thermal Comfort. Permanent Monitoring System Daylight and Views Diffuse Surlight to 90% Daylight and Views Direct Line of Site to 90% Design Excellence	_

ALL CRITERIA			
LEED Summary			
Total	Total	Total	
Credits	points	points	
Addressed	earned	partial	
0	0	1	
l			
l			
l			
1			
	_	_	
×	0	0	
x	0	0	
x	10	10	
x	2	3	
x	1	1	
x	1	1	
l			
l			
×	0	0	
1 ^	٠		
l			
o	0	1	
l			
o	1	1	
×	1	1	
0	0	1	
x	1	1	
0	0	1	
I			
l			
l			
I			
I			
	17	22	

ALL CRITERIA

 LEGEND

 LEED Credit Fully Addressed
 x

 LEED Credit Partially Addressed
 o

 LEED Points Earned
 o



# Benefits to Agencies

- Lower cost Greater Value
  - pre-defined path provide economical access for a variety of buildings
  - Matched with utility/public programs
- Consistent national baseline and program for building performance
- Educational sessions and materials
- Meet/exceed most FEMP specs
- Emphasis on measurable energy savings
- Based on life-cycle costs and off-the-shelf techniques and technologies



#### Schedule

Criteria Guide, First Edition:

Feb. 11<sup>th</sup> – 2<sup>nd</sup> Revision

March 10<sup>th</sup> – Review Committee Mtg.

March 24<sup>th</sup> – End of Public Comment

May - Board Review & Approval

May/June - Publish

- Planning Guide: 2003
- Design Guide: 2003
- Education Modules: 2003-2004
- Criteria Guide, Second Edition 2006

